BaltGaz NEVA *LUX*

INSTANTANEOUS GAS WATER HEATER FOR DOMESTIC USE

BaltGaz NEVALUX-5514

TU 4858-008-26985921-2008

USER' S MANUAL
(TOGETHER WITH THE INSTRUCTIONS ON MOUNTING, TECHNICAL SERVICE AND REPAIR OF THE WATER HEATER)

3273-00.000-01 RE

Dear customer,

Thank you for choosing our water heater.

You have purchased an instantaneous water heater with electronic control system, providing automatic ignition of the ignition and main burners at opening of the hot water tap.

When purchasing the appliance please check:

- ***Scope of delivery (p.2.3. page 5)***
- ***Compatibility of pressure and type of gas (NG or LPG) used by you with the type and pressure of gas indicated in the Acceptance certificate and in the table on the appliance.***

You should also require from the selling organization to fill in the warranty repair coupons.

When purchasing the appliance against a credit, the payment schedule should be drawn up with indication of full due and payable amount. The payment schedule should be signed by the Customer with the date indicated and with print full name.

The present user's manual is combined with the mounting, service and repair instructions and contains information about the rules of the appliance's exploitation and treatment, information about technical service and the order of the water heater's installation. Following the above-mentioned rules will provide long-term failure-free and safe operation of the appliance. Please get carefully acquainted with this manual and follow its instructions.

Best regards
Armavirsky Plant of Gas Equipment, Ltd.,
Armavir

Telephone number of the unified technical support Service 8 800 555 40 35
(free call on the territory of Russian Federation, working hours of the service: twenty-four-hour)

Installation of the appliance, instruction of the owner on the appliance's operating principles and rules of exploitation, technical service, failure elimination and repair are effectuated only by a specialized service organization.
Checking and cleaning of the exhaust flue, repair of water communications are performed by residential operational services upon request of the appliance's owner.
The responsibility for safe exploitation of the appliance and its maintenance in appropriate condition is on its owner.
Non-compliance with the safety measures and installation rules, rules of use and technical service stated in this manual can cause fire, burn, gas poisoning or poisoning with carbonic oxide (CO).

Armavirsky Plant of Gas Equipment Ltd. Is constantly working on improvement of output products and reserves the right for insertion of necessary changes in the water heater's construction. The following changes might not be displayed in the user's manual.

29.03.2013

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1. SAFETY MEASURES INDICATION

1.1. In order to avoid accidents and the appliance's breakdown it is prohibited to:

- Install and put the appliance into operation by yourself;
- Effectuate the appliance's regulation without being acquainted with the present user's manual;
- Close the grid or gap in the bottom part of the door or wall (in the premise where the appliance is installed) intended for air inlet necessary for gas combustion;
- Use the appliance if there is a lack of draught in the exhaust flue;
- -Use the appliance in case of absence or discharge of the power element
- Use the appliance when it is out of order;
- Dismantle and repair the appliance by yourself;
- Insert changes into the appliance's construction;
- Leave the working appliance unkept;
- Touch the casing of the operating appliance in the area of viewing window and in close proximity to it, and also the combustion products output pipe next to the gas removal device as the temperature of these surfaces might exceed 100 ^{o}C;

1.2 In case of possibility of water freezing in the water system of the appliance it is necessary to drain the water out of the appliance.

1.3 In case of detection of the appliance's operation failure it is necessary to address to the special service organization and not to use the appliance until troubleshooting.

1.4 At the appliance's normal operation and when the gas pipeline is in good order there should not be any smell of gas in the premise.

IF YOU FEEL THE SMELL OF GAS:

a) Close the gas supply tap, that is located on the gas pipeline next to the appliance;
b) Open the windows and doors in order to ventilate the premise, providing maximum fresh air inlet;
c) Do not switch the electric light or any other electric appliances on or off;

d) Do not use open fire (lighters, matches etc.)
e) Do not use the telephone in a gas-polluted premise;
f) Do not smoke;
g) Call the gas facility emergency operation service immediately.

Non-compliance with the above-listed safety measures may lead to poisoning with gas or carbonic oxide (CO) from the incomplete gas combustion products.

The first symptoms of poisoning are: heaviness in the head, strong palpitation, buzzing in the ears, swimming of the head, general weakness. Later nausea, vomiting, scant of breath and disordered motor function may appear. The injured person may suddenly lose consciousness.

In order to provide first aid it is necessary to:

a) Bring the injured person into the fresh air;
b) Unclasp clothes that constrain breath;
c) Give household ammonia to smell;
d) To cover warmly, but not letting to fall asleep and call the ambulance.
e) In case if there is no breath you must immediately bring the injured person to a warm premise with fresh air and make resuscitation not stopping it before the doctor arrives.

.2.DESCRIPTION AND OPERATION OF THE APPLIANCE

2.1. Appliance's purpose

2.1.1. Instantaneous domestic gas water heater «BaltGaz NEVALUX-5514» hereinafter referred to as "Appliance" is manufactured according to TU 4858-008-26985921-2008 (GOST P 51847-2009) standard and designed for water heating for sanitary purposes (washing the dishes, laundry, bathing) in the apartments and individual residential premises.

2.1.2. The appliance is designed for working on NG in accordance with GOST 5542-87 standard or LPG in accordance with GOST 20448-90 (appliance category in accordance with GOST P 51847-2009 – $II_{2H+3B/P}$) standard. The company- manufacturer releases the appliance adjusted to the particular type of pressure and gas indicated in the table on the appliance and in the Acceptance certificate.

The appliances are designed for connecting to the exhaust flue for removal of combustion products out of the premise, they are saturated with a draught stabilizer and draught sensor, have no fan in the tract for removing combustion products and by the air inlet (type of appliance in accordance with GOST P 51847-2009 standard – B_{11BS}).

2.2. Technical characteristics ***Table1***

Technical characteristics	NEVALUX-5514
2.2.1. Rated heating power, kW	28
2.2.2. Rated heating effect, kW	24
2.2.3. Rated heating power of the ignition burner, kW, not more than,	0,17
2.2.4. Gas type	NG/LPG
2.2.5. Family; gas group	2nd ; H / 3rd ; B/P
2.2.6. Rated gas pressure, kPa (mm w.g.): NG (G20, 2nd family, group H) LPG (G30, 3family, group B/P)	1,3 (130) 2,0 (200) 2,9 (300)
2.2.7. Rated gas consumption , m^3/h NG (G20, 2nd family, group H) LPG (G30, 3family, group B/P)	 3.0 1.1
2.2.8. Performance index, %, not less than	84
2.2.9. Supplied water pressure for the appliance's normal operation, kPa	30...600
2.2.10. Maximal water pressure (at water's heat expansion the pressure must not exceed this value), kPa	1000
2.2.11. Minimal water flow (for ignition), l/min	2,5
2.2.12. Minimal water pressure (for ignition), not more than, kPa	15
2.2.13. Water consumption at heating for Δ=40 °C, l/min	8,5*
2.2.14. Water consumption at heating for Δ T=25 °C, l/min	14,0*
2.2.15. Required rarefaction in the exhaust flue, Pa (mm w.g.), Not less than Not more than	 1,96 (0,2) 29,4 (3,0)
2.2.16. Mass consumption of combustion products NG/ LPG at rated heating power, g/s	10,1 / 11,0
2.2.17. Average temperature of combustion products, °C	150
2.2.18. Minimal allowable inlet gas pressure at the appliance's operation, Pa (mm w.g.)	784 (80)
2.2.19. Combustion products temperature, °C, not more than	110
2.2.20. Appliance's ignition type	electronic
2.2.21. Appliance's overall dimensions, mm: Height Width Depth	 650 350 239
2.2.22. Weight of appliance, NET /GROSS, kg, not more than	12,5/14,0
2.2.23. Diameter of the nozzles of the main burner, mm : NG 1,3 kPa (G20, 2nd family, group H) 2,0 kPa LPG 2,9 kPa (G30, 3rd family, group B/P)	 1,31 1,18 0,79
2.2.24. Diameter of the nozzles of the ignition burner, mm : NG (G20, 2nd family, group H) LPG (G30, 3rd family, group B/P)	 0,55 0,35
2.2.25. Type and voltage of power element, V	LR20; 1,5 B
2.2.26. Continuous operation with one power element, h	250*

* Reference parameters for p. 2.2.13, 2.2.14 - at water pressure at least 250 kPa by the inlet into the operating appliance;, for. 2.2.26 - when using alkaline power elements with high energy output ratio.

Main particularities of the appliance:

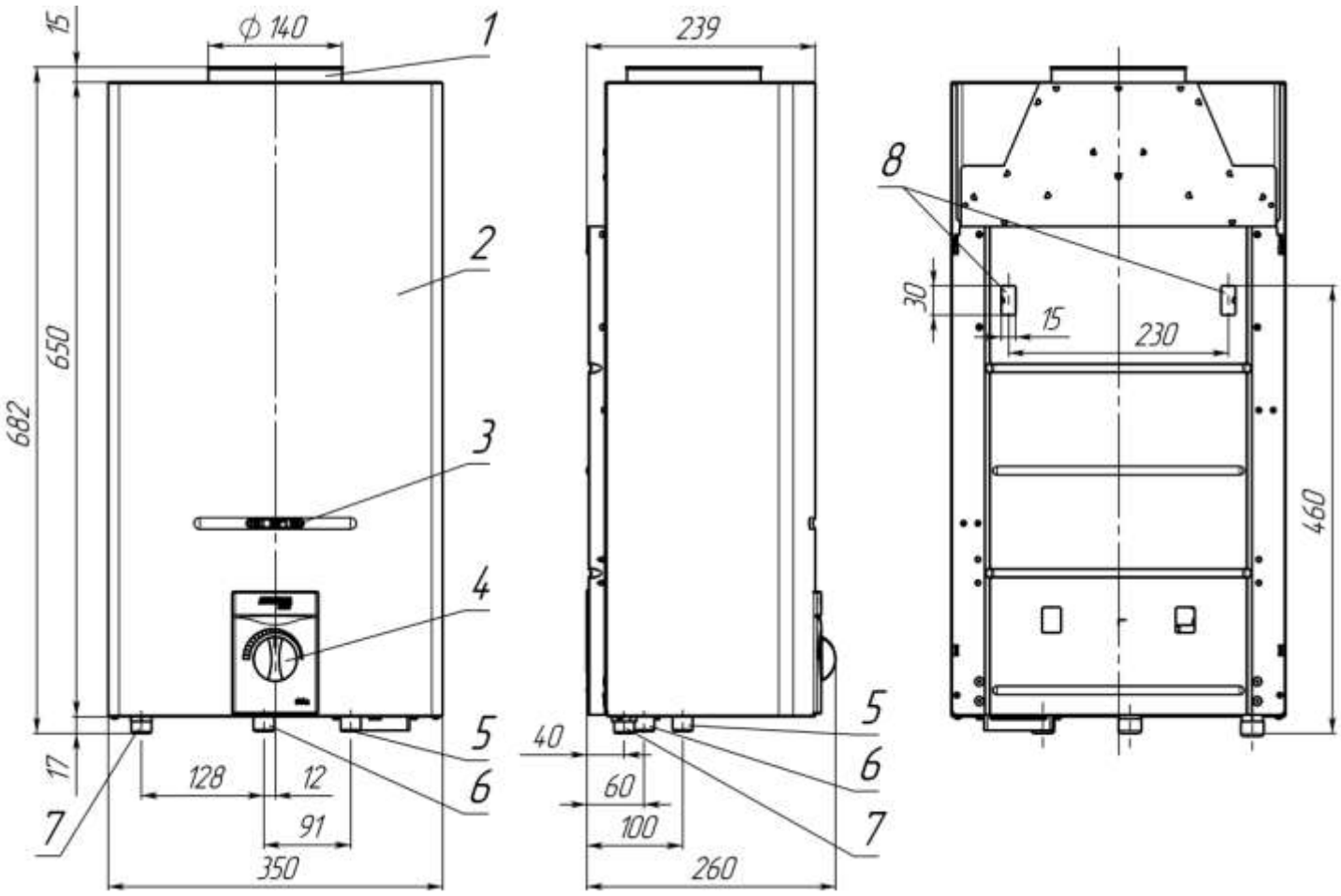
- The appliance is automatically switched on when the hot water tap is opened (at water consumption more than 2,5 l/min);
- The ignition burner automatically switches off after the main burner ignites.

2.3. Supply package

Table2. Supply package of the appliance «BaltGaz NEVALUX-5514»

Designation	Name	Amount, pcs.
3264-00.00	The appliance «NEVALUX-5514»	1
3273-00.000-01 RE	User's manual	1
3264-82.00	Package	1
3208-06.600	Mounting hardware set	1
	Set of the appliances fastening elements	1
	Spare parts	
3103-00.014	GasketD19xd10x2	2
Note. The power element is not included into the supply package.		

2.4. Overall and connection dimensions of the appliance



1 – gas removal device branch pipe; 2 - casing; 3 – viewing window;
4 – gas consumption tap knob; 5 - fitting of cold water supply, screw thread G 1/2;
6 - fitting of gas supply, screw thread G 1/2; 7 - fitting of hot water output, screw thread G 1/2;
8 – mounting holes

Scheme 1. Overall and connection dimensions of the appliance

3. USAGE OF THE APPLIANCE

For normal and safe appliance operation the conditions presented in p. 2.2.9, 2.2.15 and 2.2.18 (see Table 1, page 4) must be fulfilled. Non- compliance with these conditions can cause the appliance's inappropriate or unstable operation and even its breakdown. The heating effect of the appliance indicated in the p. 2.2.2 is provided (with an accuracy ±5%) at rated gas pressure on the inlet into the operating appliance, indicated in the Acceptance certificate.

3.1. Putting the appliance into operation

3.1.1. In order to put the appliance into operation in a general case it is necessary to:

a) Install the power element into the battery section (see p.3.4, page 8);
b) Open the stop valve of cold water by the inlet into the appliance;
c) Open the stop valve on the gas pipeline by the inlet into the appliance
d) Open the hot water tap, while spark discharges should appear between the plug and ignition burner (if the water flow going through the appliance will be at least 2.5 l/min), from the spark discharges the ignition burner should ignite and from the ignition burner the main burner should ignite. After igniting the main burner the ignition burner's flame must go out.

ATTENTION! ***To avoid burns, do not approach your eyes too close to the viewing window while the appliance is being switched on*.**

Note: *At first launching of the appliance or after long-term period of break in appliance's operation, the ignition burner's ignition will occur only after air removal out of gas pipeline. As the spark discharges last not more than 60 seconds after switching the water on, for continuing the ignition it s necessary to close the hot water tap, and then open it again. You need to repeat this procedure until complete air removal out of the pipeline and until the ignition burner ignites.*

3.1.2. Changing of water consumption with which switching the appliance on and off occurs is effectuated by the knob of the tap 15 (scheme. 14, 15, 16). Turning the knob 15 clockwise (counterclockwise) leads also to reduction (increase) of consumption of water running through the water heater.

Switching the appliance on at leftmost position of the knob of the tap 15 (minimal water consumption – see scheme 14, 15, 16) occurs at water consumption 2,5 l/min, switching off - at 2 l/min. Such knob position is recommended at low inlet water pressure (with small consumption of water provided by the water supply network).

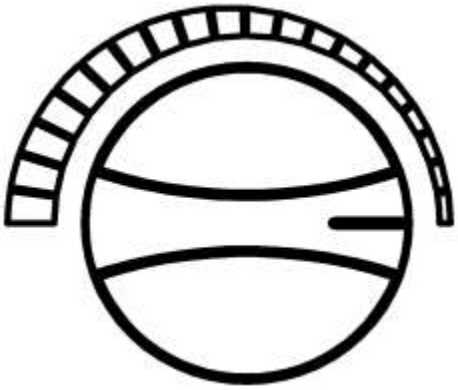
Switching the appliance on at rightmost position of the knob of the tap 15 (maximal water consumption) occurs at water consumption 3 l/min, switching off-at 2,5 l/min. With such knob position it is possible to receive increased consumption of heated water by the appliance's outlet.

3.2. Water temperature regulation

3.2.1 Water temperature regulation at the appliance's operation.

3.2.2 Water temperature regulation by the appliance's outlet can be effectuated in one of the following ways:

a) Turning the knob 4 of the gas consumption tap of the appliance (see Scheme 2, Scheme 3): turning the knob clockwise to the position ***"Minimal consumption"*** reduces gas consumption and water temperature, turning the knob counterclockwise to the position ***"Maximal consumption"*** increases gas consumption and water temperature;
b) .changing the consumption water running through the appliance by the hot water tap: increasing water consumption (at consumption of more than 4…6 l/min) leads to its temperature reduction, water consumption increase leads to its temperature reduction



a) Gas consumption tap knob in the position ***"Minimal consumption"*** ***b)*** Gas consumption tap knob in the position ***"Maximal consumption"***

Scheme 3. Positions of the gas consumption tap knob

At water consumption reduction to 2…2,5 l/min or less the appliance automatically switches off.

Note 1. *Water overheating in the heat exchanger causes the appearance of noise during the appliance's operation and causes fast scale deposit appearance in the heat exchanger's pipes and narrowing of their flow sections, what in some time will lead to the appliance's operation efficiency reduction and weakening of hot water jet. So in order to reduce the appliance's output water temperature it is not recommended to use a mixing vessel, adding cold water but to use the above listed methods.*

Note 2. *It is not recommended to set high hot water temperature by the appliance's outlet if not necessary, as water overheating in the heat exchanger causes the appearance of noise during the appliance's operation and causes fast scale deposit appearance in the heat exchanger's pipes and narrowing of their flow sections, what in some time will lead to the appliance's operation efficiency reduction and weakening of hot water jet. So in order to reduce the appliance's output water temperature it is not recommended to use a mixing vessel, adding cold water but to set the temperature needed in the water pumping point by means of gas consumption knob.*

3.3. Switching the appliance off

3.3.1 In order to switch the appliance off it is enough to stop water flow through it, closing all hot water taps. After closing all hot water taps it is necessary to make sure that the main burner's flame has completely gone out.

ATTENTION! If after closing all hot water taps the main burner is still operating, it is necessary to immediately block gas supply by means of the gas stop valve of the appliance's inlet, and call a specialized service organization for the appliance's repair.

3.3.2 When you finish using the appliance (at night time, not being at home etc.) it is necessary to switch it off, following the following sequence:

a) Close the hot water taps;
b) Close the stop gas valve by the appliance's inlet;
c) Close the cold water stop valve by the appliance's inlet

In case of hard water, in order to reduce scale deposit appearance it is recommended to reduce water consumption by the hot water tap before closing it until the main burner switches off (less than 2 l/min) and let the water run through the appliance until it is warm. Then close the hot water tap.

3.4. Replacing the appliance's power elements

3.4.2. The indicator of the power element's discharge is absence or substantial weakening of the spark discharges between the plug and ignition burner after start of water flow through the appliance (at consumption more than 2,5 l/min)

3.4.3. The new power element of typical size D is installed into the battery section 13 (see scheme. 10, scheme11, scheme. 12).

When installing the power element it is necessary to observe polarity in accordance with the scheme on the inner side of the section's cover.

It is recommended to install alkaline power element type LR20 with high energy output ratio that ensures more durable operation of the appliance. Installation of low-quality power elements or elements with low energy output ratio may lead to their quick discharge and the appliance's loss of function..

3.5. Protection from freezing

If after switching the appliance off water freezing in it is possible, it is necessary to drain the water out of it as follows:

a) Close the gas stop valve and cold water tap by the appliance's inlet;
b) Open the hot water tap and turn the knob of the tap 15 (scheme 10, scheme 11, scheme 12) to the rightmost position;
c) Unscrew the gag 14 and let the water leak into a tank;
d) Screw the gag 14 back up to the stop and close the hot water tap.

3.6. Actions in emergency situations

In case of emergency situation during the appliance's operation it is necessary to:

a) Close the gas stop valve by the appliance's inlet;
b) Close the cold water stop valve by the appliance's inlet (in case of water leakage);
c) Call a specialized service organization for the appliance's repair..

ATTENTION! In case of failures in the combustion products removal system gas supply to the burner stops. In case of the appliance's switching off by a signal from the thermo relay (draught sensor 16, Scheme 10, Scheme 11, Scheme 12) it is necessary to close the hot water tap and ventilate the premise.

Restarting of the appliance will be possible after the thermo relay cools down (in 1-2 minutes). In case of the appliance's repeated switching off by the draught sensor it is necessary to address to the specialized service organization for gas removal system failure elimination. Disconnecting the draught sensor or its incompetent handling is unacceptable and may lead to sweetdamp poisoning.

4. APPLIANCE TREATMENT

In order to ensure long-term and failure-free-free operation of the appliance and keep its operating characteristics it is necessary to regularly effectuate its examination, treatment and technical service.

In order to ensure fire safety it is necessary to carefully and attentively look after the burners' cleanliness, not to allow smoky flame appear at gas combustion, which leads to soot deposit appearance on the heat exchanger. At that gaps between the heat exchanger's fins are covered with soot and as a result the flame casts out from the combustion chamber which can lead to fire.

The examination and treatment of the appliance are performed by its owner.

Technical service of the appliance is performed by the specialized service organization not later than 12 months from the date of installation and then not less than once per 12 months.

ATTENTION! Works connected with technical service are not the manufacturer company's warranty liabilities and are effectuated at the customer's cost.

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4.1 Examination

4.1.1. Every time before switching the appliance on it is necessary to:

a) Make sure that there are no flammable objects next to the appliance;

b) Make sure that there is no smell of gas in the premise, in case if the smell of gas is detected, address to the gas facilities service.

4.1.2. At the ignition burner's ignition it is necessary to check its operability by the combustion behavior: the ignition burner's flame must not be smoky and must reach the flame sensor's electrode and the main burner.

4.1.3 After the main burner's ignition it is necessary to visually check its operation: the flame should be blue and straight without any yellow smoky edges indicating the contamination of the inner channels of the burner's blades.

The burner blade's inner channels contamination causes incomplete gas combustion and it leads to the appearance of big amounts of the following:

- carbon monoxide, which can cause poising;
- soot that forms deposit on the heat exchanger what worsens heat exchange and can cause the appliance's breakdown

4.2 Treatment

4.2.1. The appliance should be kept clean, for this it is necessary to regularly remove dust from the upper surface of the appliance, and also to wipe the casing at first with a wet rag, then with a dry one. In case of substantial contamination, it is necessary to wipe the casing at first with a wet rag moistened in a neutral detergent, then with a dry rag.

4.2.2. It is forbidden to use detergents of heightened effect and containing abrasive particles, gasoline or any other organic solvents to clean the surface of the casing and plastic parts.

ATTENTION! It is allowed to perform all appliance treatment operations only after the appliance is switched off and cooled down.

5. RULES OF TRANSPORTATION AND STORAGE

The appliance must be kept and transported in the package only in the position indicated on the handling marks.

The appliance must be kept in a closed premise which guarantees protection against atmospheric and other harmful impacts at the air temperature from -50 °C to +40 °C and relative humidity not more than 98%.

In case of the appliance's storage for more than 12 months it must be subject to conservation in accordance with GOST 9.014 – 78 standard.

Apertures of the inlet and output fittings should be closed by the gauges or cover plugs.

Every 6 months of storage the appliance must go under technical examination, during which the absence of wet entry and dust contamination of unit and details of the appliance are checked.

The appliances should be put in not more than 8 tiers during collection into stacks and transportation.

6. SAFETY MEASURES

6.1. Mounting of the appliance, putting it into operation and its technical service must be performed only by a specialized service organization. The appliance's mounting must be effectuated in accordance with the project corresponding to the requirements of the Federal and local regulatory acts, governing the installation of the gas-powered equipment.

6.2. Placing the appliance, pipelines, exhaust flues, smoke exhausters and other engineering equipment should provide safety of their operation, ease of technical service and repair.

6.3. Before connecting the appliance it is necessary to do the following:

-Check the compliance of the settings indicated in the Acceptance certificate and in the table on the appliance with the type and pressure of gas available at the place of the appliance's installation. In case of non-compliance it is necessary to effectuate the appliance's rendering to the used type and pressure of gas in accordance with p.7.10 (page 15)

-To make sure that the exhaust flue is correctly mounted and air-tight;

- In order to provide the appliance's correct operation and keep the warranty, it is necessary to follow the requirements of this manual.

7 APPLIANCE INSTALLATION

The appliance must be installed by the specialized service organization. After the appliance's installation, checking its working capacity and the appliance's owner's instructing by an employee of the organization that installed the appliance, a mark about the appliance's installation should be made in the Certificate of installation, technical service and repair and in the warranty coupons

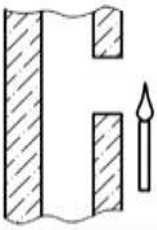
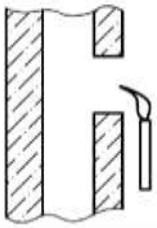
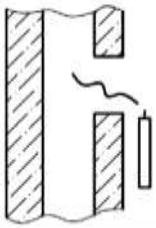
7.1 Place and scheme of installation

7.1.1. The appliance must be installed in kitchens or any other heated non-residential premises according to the project of gasification and set of rules SP 62.13330.2011.

7.1.2. The volume of the premise where the appliance is installed should be not less than 8 m^3.

7.1.3. The premise where the water heater shall be installed must have good ventilation and constant fresh air inflow (window or opening transom), because while the appliance is on, oxygen combustion occurs. Grids or gap in the bottom part of the door or wall must not be tightly closed

7.1.4. The appliance must be connected to the exhaust flue with a good draught (rarefaction 1, 96…29, 4 Pa) and besides it should be located as close to the exhaust flue as possible. One of the available ways to test the draught in the exhaust flue is presented on the scheme 4.

No draught (the candle flame doesn't' bend) – do not use the appliance	Insufficient draught (the candle flame bends) do not use the appliance	Good draught (the candle flame goes out) -the appliance can be used
Нет тяги *(пламя свечи не отклоняется)* **- не используйте аппарат**	**Недостаточная тяга** *(пламя свечи отклоняется)* **- не используйте аппарат**	**Хорошая тяга** *(пламя свечи гаснет)* **- аппарат можно использовать**
		

Scheme 4. Way of testing draught in the exhaust flue

7.1.5 The appliance must be installed on the fire resistant walls: brick, concrete (with a ceramic plating or without it).).

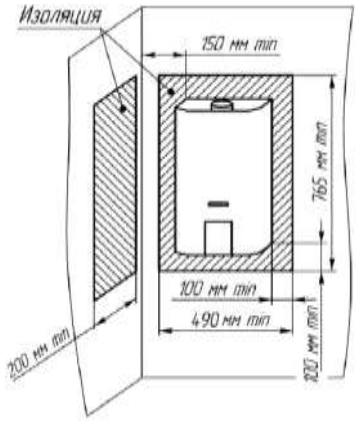
It is acceptable to install the appliance on firehard walls if the wall is insulated with a zinc-coated steel sheet with thickness 0, 8…1 mm along the basalt felt woolen board with thickness 3…5 mm. Insulation of the wall should go over the overall dimensions of the appliance's body frame for at least 100 mm from each side (see scheme 5).

The distance from the appliance's lateral surfaces to firehard walls without insulation should be at least 250 mm. If the indicated distance is reduced to 150 mm, it is necessary to install the heat insulation (upholstery of walls by the zinc-coated steel sheet on the sheet of the heat insulation material).

When installing the appliance on fire resistance walls it is not needed to install the insulation.

7.1.6 It is forbidden to install the appliance on wooden walls; plastered walls which have wooden base; on walls covered with highly flammable materials.

7.1.7 It is forbidden to install the appliance above a source of heat or open flame.



Scheme 5. Appliance installation on firehard walls

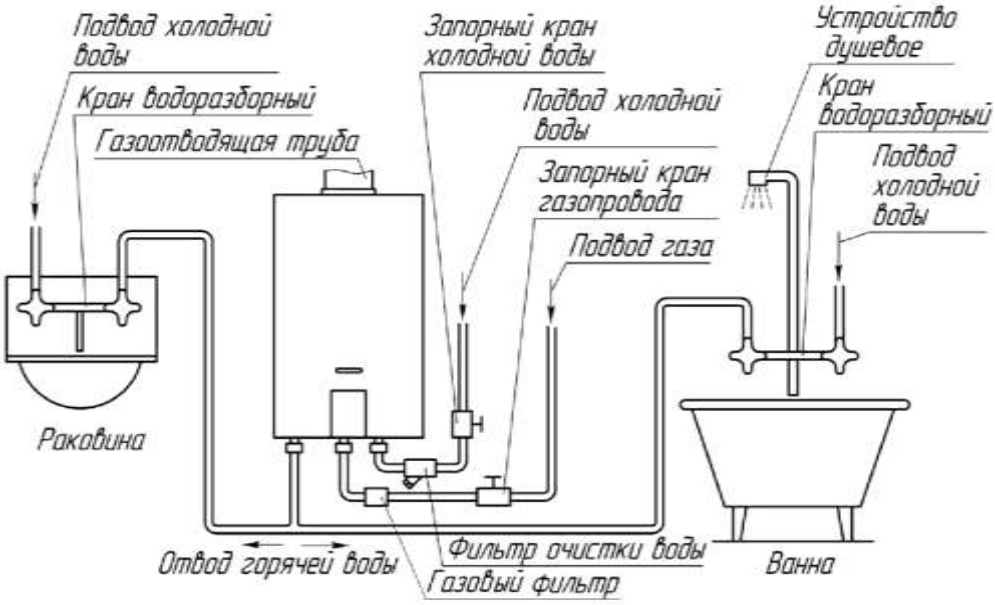
Scheme 5. Appliance installation on firehard walls

7.1.8. Place and height of the appliance's installation should meet the requirements of p .7.7 (page 14) of this manual. Besides it is recommended to install the appliance on the height so that the viewing window will be on the level of consumer's eyes or as close to this level as possible.

Also for effectuating the technical service at the appliance's installation it is necessary to keep the following spaces:

- The distance from the appliance's lateral surface to the lateral wall must be not less than 150 mm;
- Free space in front of the appliance's front surface should be not less than 600 mm.

7.1.9. Scheme of appliance's installation (connection) is represented on the scheme 6. It is recommended to connect the appliance at first to the water supply system, to fill it with water and then connect it to the gas network.



Scheme 6. Scheme of the appliance's installation

7.2 Mounting the appliance

7.2.1 Before installing the appliance it is recommended to remove the casing, for this it is necessary to do the following:

a) Unscrew in the appliance's bottom part two self-threading screws fixing the casing to the carrier on the body frame;

b) Pull the casing's bottom part towards yourself, move it upwards and remove from the appliance.

8 If the casing or the appliance's body frame is covered with a protective polyethylene film, it is necessary to remove it before installation. Also it is necessary to remove the stickers with warning notes and advertising information from the front surface of the casing (if there are any)

7.2.2. The appliance is hanged by the mounting apertures (on the back wall) on two hooks, mounted on the wall (hooks and dowels are included into the supply package). Position and sizes of the mounting apertures are shown on Scheme 1, Scheme 2 (page 6). If a harness board is included into the supply package, it is recommended to use it for marking the holes on the wall.

7.2.3 Overall and connecting dimensions for connecting water pipes, gas pipes, and pipes for removal combustion products are presented on the scheme 1 and 2 (page 6).

7.3. Connecting the appliance to the water supply system

7.3.1. In order to increase the appliance's working lifespan and improve its exploitation characteristics is recommended to install a water filter by the appliance's inlet (see scheme 6)

7.3.2. In order to facilitate further technical service it is necessary to install by the appliance's inlet a stop valve on the cold water supply pipeline. The stop valve must be easily accessible.

7.3.3. Connecting appliance to the water supply system should be effectuated with metallic tubes or flexible hoses with inner diameter not less than 13 mm. The length of the flexible hose for water inlet or output should be not more than 2,5 m. Rules of flexible hoses installation are represented in the p. 7.6, page 13.

7.3.4. Cold water connection must be effectuated to the fitting of cold water supply 5, and hot water connection - to the fitting of hot water outlet 7 (see scheme 1, 2), having previously removed protective gags from the fittings.

7.3.5. Connection of pipes of hot and cold water should not be accompanied by mutual interference of pipes and parts of the appliance in order to avoid displacement or breakage of separate details and parts of the appliance and disturbance of water system's air-tightness.

7.3.6. Before connecting the appliance to the water supply network it is necessary to open the cold water supply for some time to clean the pipe of water supply to the appliance and prevent unwanted entering of the contamination and sediments at its first starting up.

7.3.7. After connecting the pipelines to the appliance it is necessary to test joints on air-tightness. Air-tightness check is done as follows:

a) Open the hot water tap;
b) Open the cold water stop valve by the appliance's inlet;
c) After filling the appliance's duct with water, close the hot water tap and examine the joints.

Leakage in the joints is unacceptable. It is also recommended to examine the joints of the appliance's water duct, as their air-tightness disturbance is possible in case of the appliance's transportation and storage conditions violation. Tighten the joints if necessary.

7.4 Connecting the appliance to the gas system

7.4.1. In order to increase the appliance's working lifespan and improve its exploitation characteristics is recommended to install a gas filter by the appliance's inlet (see scheme 6, page 11)

7.4.2 In order to ensure stable operation of the appliance it is necessary to effectuate the gas line connection with metal pipes or flexible hose with an internal diameter not less than 13 mm. The flexible hose for supplying gas, in accordance with the SNiP 42-01-2002 requirements must be resistant to the supplied gas at set temperature and pressure. Flexible hose length should not be more than 2.5 meter. Flexible hoses installation rules are given in p. 7.6. Pipes or a flexible hose should be connected to the fitting 6 (see scheme. 1,2, page 6) after removing the protective gag from it.

7.4.3. Installation of the gas pipelines' dismountable joints should be kept to a minimum.

7.4.4. When connecting a gas line to the appliance, there should be obligatory a stop valve installed by the appliance's inlet. The stop valve must be easily accessible.

7.4.5. Connecting the gas pipe must not be accompanied by mutual interference of pipes and parts of the appliance in order to avoid displacement or breakage of individual details and parts of the appliance and a violation of the gas line air-tightness.

7.4.6. After connecting the appliance to the gas line, the joints of connection of the appliance with the pipes should be tested on air-tightness. Air-tightness check in the joints of gas supply is made on non-operating appliance and when the appliance's inlet stop valve is open. Gas leakage is not allowed.

Checking the air-tightness of the gas joints is effectuated by means of soap solution bubble test of the connection points (or other safe methods without using open flame). Appearance of bubbles indicates gas leakage.

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7.5 Connecting the appliance to the LPG cylinder

7.5.1. Before connecting the appliance to LPG cylinder make sure that your appliance is adjusted to work with this type of gas. Otherwise it is necessary to render it (see p. 7.10, page 15).

7.5.2. The LPG cylinder must necessarily be equipped with a reduction unit with vapor phase stabilization pressure 300 mm w.g., and the vapor phase output at least 1 m3/h.

ATTENTION!

Usage of reduction units with stabilization pressure different from 2.9 kPa is PROHIBITED.

7.5.3. The length of a flexible hose for connecting the appliance should be not more than 2.5 m and the inner diameter not less than 12 mm. A flexible hose for gas supply should be resistant to the supplied gas at set temperature and pressure. Rules of flexible hoses installation are given in p. 7.6.

7.5.4 The flexible hose must be connected to the fitting 6 (see scheme 1, 2 page 6), after removing the protective gag from it.

7.5.5. A gas stop valve should be installed by the appliance's inlet. The stop valve must be easily accessible. It is also recommended to install a gas filter by the appliance's inlet

7.5.6. After the mounting termination, it is necessary to check the joints and the entire length of the connecting hose for air-tightness (see p.7.4.6).

7.5.7. In order to avoid accidents it is **PROHIBITED TO**:

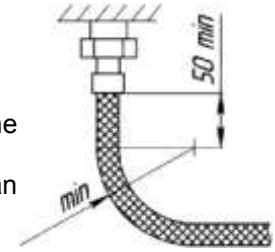
- store gas cylinders and lay hoses under direct sunlight, next to heat sources (ovens, stoves, radiators and other heating appliances);
- heat the gas cylinders with flame or heating appliances;
- use damaged gas cylinders.

7.5.8. It is recommended to store gas cylinders in a special metal cabinet to restrict access of children or other unauthorized persons.

7.6. Rules of flexible hoses installation

7.6.1 Flexible hoses applied for the appliance's connection, should be certified for the appropriate use.

Upon their working lifespan termination they should be obligatory replaced..



7.6.2. If the appliance is connected by means of the flexible hoses, it is necessary to take into account the following rules of mounting:

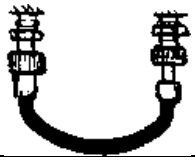
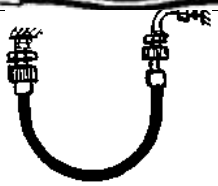
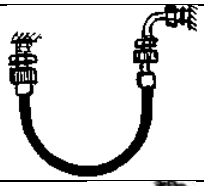
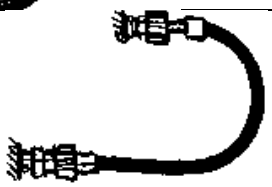
- do not twist the hose relative to the longitudinal axis;
- prevent the hose from bending close to the tips: the length of hose's area next to the scaling-off, which shouldn't be subject to bending shall be not less than 50 mm;
- The hose's bending radius, as measured by the external forming shall be not less than 90 mm.

It is recommended to:

- use angle connections and adapters to avoid hoses fractures next to the tips
- use interval supports when long hoses are mounted;
- At rectilinear arrangement mount the hoses with sagging.

Recommended mounting schemes of the flexible hoses are presented in the table 5.

Table 5. Flexible hoses installation scheme

Wrong	Correct
	
	
	

7.6.3. Mounting a hose is necessary to begin with the non-movable elements of the hose which have a pipe cylindrical thread (if a counterpart is stationary).

7.6.4. Sealing of the fitting's threaded joint with a counterpart (radial connection) must be made using a Teflon tape sealing material (FCM) or sealant that provides air-tightness of the threaded joint.

7.6.5. The threaded joint of the captive nut (end connection), for the movable and also non-movable parts with a counterpart fitting must be performed applying gaskets. Gasket material- oil and petrol resistant rubber or polytetrafluorethylene.

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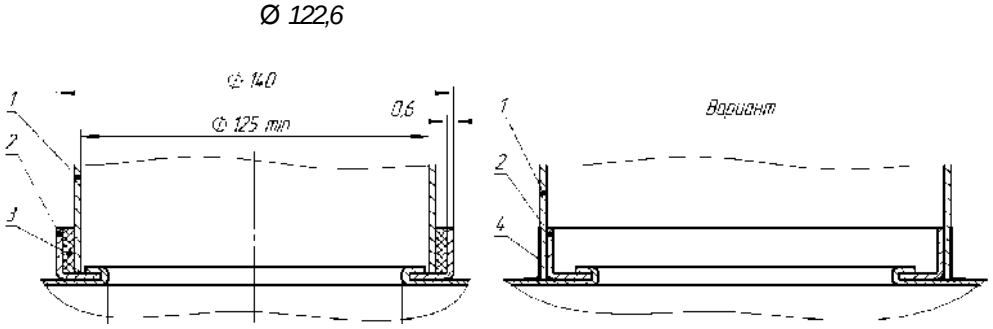
7.7.Connecting the appliance to the exhaust flue

7.7.1. In order to remove all gas combustion products and to ensure safe operation of the appliance the following requirements to the exhaust flue and flue pipe, connecting the exhaust flue with the appliance should be fulfilled:

- the exhaust flue should be air-tight and resistant to the heating load and impact of combustion products

It is not allowed to use ventilation channels to remove the combustion products;

- Draught in the exhaust flue should vary from 1,96 up to 29,40 Pa (see table 1 page 4);
- Flue pipe's material should be corrosion- resistant, nonflammable and sustain durable operation at the temperature up to 200 °C. The recommended materials are: stainless steel, zinc-plated and enameled steel, aluminum, copper with wall thickness at least 0,5 mm;
- The flue pipe must have an inner diameter not less than 125 mm;
-Length of the vertical part of the flue pipe from the appliance must be at least 500 mm;
-Length of the flue pipe from the vertical part to the exhaust flue must be not more than 2 m;
- The flue pipe should have a slope of not less than 2° up in the direction of the link-up point with the exhaust flue and minimal number of turns (not more than three)
- - The flue pipe and its connection with the appliance must be air-tight; connecting the pipe with the appliance should be performed in accordance with the scheme 7.

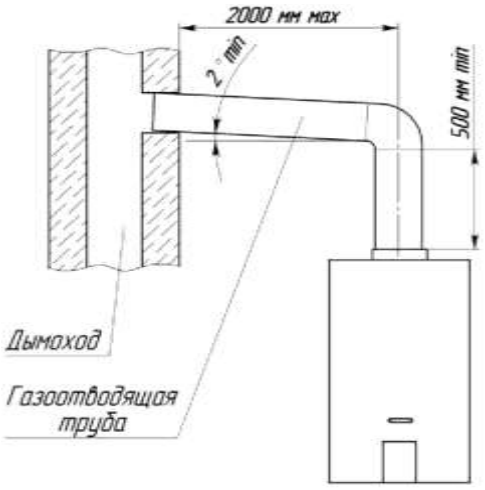


1 – flue pipe; 2 – appliance's gas removal device hose;
3 - heat-resistant sealant; 4- aluminum heat-resistant tape

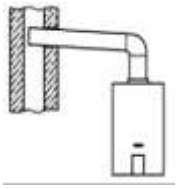
Scheme 7. Scheme of connecting the flue pipe to the appliance

7.7.2. Variant of connecting appliance to the exhaust flue is represented on the scheme 8.

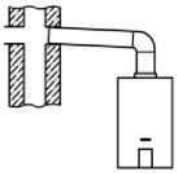
Correct



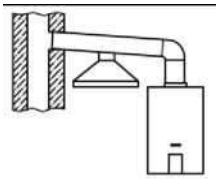
Wrong



The end of the flue pipe is too close to the opposite side of the exhaust flue.



There is an aperture on the level of flue pipe connection (including another device connected to it).



Two devices have one connection to the exhaust flue .

Scheme 8. Connecting the appliance to the exhaust flue

7.8 Installation of the appliance's power elements

Power elements of the typical size D are installed into the battery section 13 (see. Scheme 10, Scheme 11, Scheme 12) in accordance with polarity indicated on the inner side of the cover of the section. It is recommended to install the alkaline power elements of the LR20 type, with higher energy output ratio providing more durable operation of the appliance.

7.9 Checking the appliance

After installing the appliance and checking it on air-tightness, you must check: the operation of the ignition and main burner (p. 4.1.2, 4.1.3, page 9), automatic safety devices operation (п. 8.2.6, page 20), and the hot water's temperature and consumption. Switching the appliance on and off and regulation of its water temperature must be effectuated in accordance with section 3 (page 7).

Note: *After keeping the appliance in a premise with sub-zero temperature, it is recommended to perform its first launching not earlier than in 1,5 h after it was brought to a warm premise.*

If necessary (in case of insufficient water heating) the appliance's inlet gas pressure should be checked. In order to measure gas pressure, having previously closed the gas stop valve by the appliance's inlet, it is necessary to connect a manometer to the fitting 22 (Scheme 12)

Gas pressure measurement must be effectuated on the operating appliance and at maximum gas consumption. Gas pressure must comply with the value indicated in the Acceptance certificate.

7.10 Rendering the appliance to another type and pressure of gas

7.10.1 **Rendering the appliance to another type of pressure or gas must be done by a specialized service organization. For rendering it is necessary to use only a branded set of details.**

Before rendering it is necessary to switch the appliance off and close the gas stop valve.

7.10.2 In order to render the appliance to another type of gas or pressure it is necessary to replace the nozzles of the main burner's manifold and the nozzle of the ignition burner for the nozzles with an orifice diameter in accordance with table 1 for the type and pressure of gas the appliance will operate on.

After rendering it is necessary to check the joints' air-tightness.

The type and pressure of gas the appliance has been rendered on, must be indicate in the Acceptance certificate (indicating the organization that effectuated the rendering and the date of effectuation) and in the table on the appliance.

8. CONSTRUCTION AND OPERATION CONTROL OF THE APPLIANCE

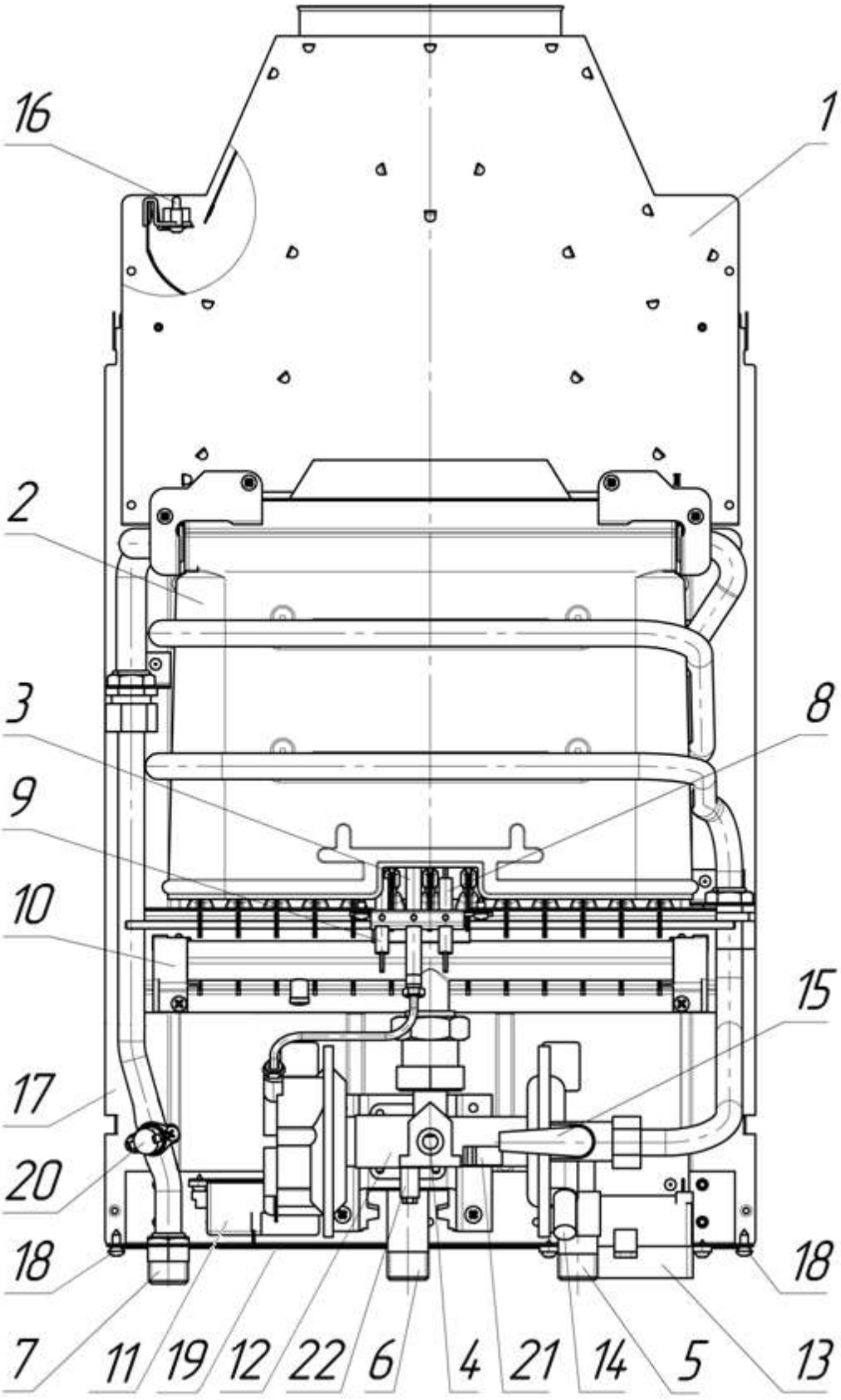
8.1 Construction of the appliance

8.1.1 The wall-mounted appliance (see Scheme 1, Scheme 2 page.6) has a rectangular form formed by a detachable casing 2.

8.1.2 The appliance «NEVALUX-5514» has the following elements on its front side of the casing 2 (see Scheme 2 page 6.): gas consumption tap control knob 4, viewing window 3 for watching the ignition and main burners' flames. All main elements of the appliance are mounted on its body frame 17 (see Scheme 12).

8.1.3 Function of the main units and components of appliance (see Scheme 10, 11, 12):

- Gas removal device 1 is designed to remove the combustion products to the exhaust flue;
- heat exchanger 2 provides transfer of the heat received at gas combustion to the water flowing through its pipes;
- Gas and water unit 12 is designed to control gas supply to the ignition and main burners, and consists of water and gas units and the valve block(the unit's construction ensures gas supply to the ignition and main burner only if there is water flow);
- Ignition burner 3 is designed for igniting the main burner;
- Main burner 10 is designed for creating and burning air-gas mixture;
- Electronic control block 11 provides ignition control and gas supply to the ignition and main burners;
- flame sensor 8 ensures control of the ignition and main burners' operation;
- plug 9 is designed to create a spark charge for the ignition burner's ignition;
- Gag 14 is used for draining the water from the water heater's water circuit in order to prevent it from freezing; a safety valve integrated into the gag is designed to protect the appliance's water circuit from high water pressure.;
- thermo relay 16 (draught sensor) is designed to switch the appliance off in case of no draught in the exhaust flue



1 – gas removal device; 2 – heat exchanger; 3 – ignition burner; 4 – gas consumption tap;
5 - cold water supply fitting; 6 - gas supply fitting; 7 - hot water output fitting;
8 – flame sensor; 9 - plug; 10 – main burner; 11 – electronic control block; 12 – water and gas unit; 13 – battery section; 14 – water drain plug with a valve; 15 – water consumption tap (located under the casing);
16 – thermo relay (draught sensor); 17 – body frame; 18 –casing fixation screws; 19 – table;
20 – thermo relay (water overheating sensor); 21 – micro switch (water flow sensor); 22- fitting for measuring inlet gas pressure.

Scheme 11. Appearance of the appliance «BaltGaz NEVALUX-5514» without casing

8.2 Operation of the appliance

8.2.1 The appliance's flow chart is represented on scheme 14.

8.2.2 At the beginning of water flow through the water unit 17 with water consumption not less than 2,5…3 l/min the gas valve 24 is opened by the membrane stem 18 and the contacts of the micro switch 21 close. After this the valve 28 opens gas supply from the cavity behind the membrane of the valve block 26 to the ignition burner 3 and from the electronic control block 11 high-voltage current impulses are supplied to the plug 9.From the electric sparks between the plug's tip and the ignition burner's nozzle the ignition of the ignition burner occurs. After the ignition burner's ignition, what can be defined by the flame sensor 8, the valve 27 closes gas supply to the cavity behind the membrane of the valve block, gas from the cavity behind the membrane comes out through the ignition burner and the membrane 29 of the valve block opens the valve 30 supplying gas to the main burner 10 with the help of pressure drop. The main burner ignites and the ignition burner's flame goes out. The main burner's operation is controlled by the flame sensor 8.

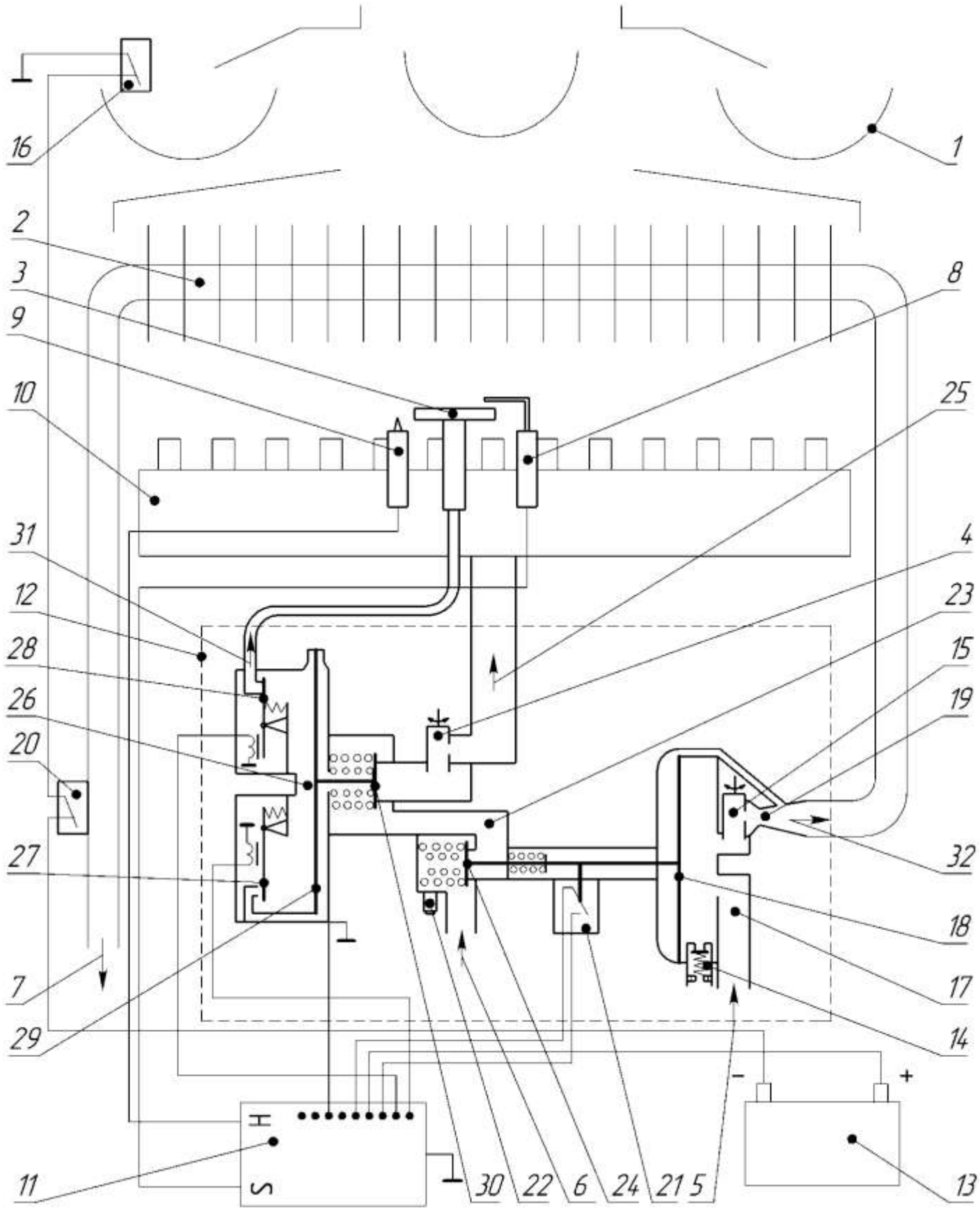
8.2.3 The tap 4 regulates the consumption of gas supplied to the main burner in order to receive the required water temperature at its set consumption: turning the tap counterclockwise increases gas consumption and water temperature, turning the tap clockwise reduces gas consumption and water temperature.

8.2.4 The tap 15 changes water consumption in a small range and influences at the same time the displacement of the membrane 18, and accordingly the value of the valve 24 opening. Turning the tap clockwise reduces water consumption and increases the membrane's displacement and gas consumption, what leads to water temperature increase. Turning the tap counterclockwise increases water consumption and reduces the membrane's displacement and gas consumption, what leads to water temperature reduction. So the tap 15 influences also the water consumption value, with which the appliance switches on (ignition of the ignition burner, and then of the main burner) and switches off (switching off of the main burner). When the tap is turned clockwise up to the stop (this position is shown on Scheme 5), , the water heater is switched on with the consumption of 2,5 l/min, and switched off with the consumption of 2 l/min. When the tap is turned counterclockwise up to the stop the water heater is switched on with the consumption of 3 l/min, and switched off with the consumption of 2,5 l/min.

8.4.5.At water flow stop or at its consumption reduction to a volume less than 2...2,5 l/min the contacts of the micro switch 21 open and the valves 24 and 30 close and the main burner's flame goes out.

8.4.6. The appliance is equipped with safety devices, providing:

- gas access to the burners only in case of water flow;
- gas access to the main burner during the ignition only in case if there is a flame on the ignition burner;
- stop of gas supply to the main burner in case if its flame goes out;
- switching the main burner off in case of no draught in the flue pipe;
- switching the main burner off in case of water flow stop;
- switching the main burner off in case of water heating for more than 90 ^{o} C
- switching the main burner off in case of power elements discharge.



1 – gas removal device; 2 – heat exchanger; 3 – ignition burner; 4 – gas consumption tap 5 – cold water supply; 6 – gas supply; 7 – hot water outlet; 8 – flame sensor; 9 - plug; 10 – main burner; 11 – electronic control block; 12 – water and gas unit; 13 – battery section; 14 – water drain plug with a valve; 15 – water consumption tap; 16 – thermo relay(draught sensor); 17 – water unit; 18 – water unit membrane; 19 – Venturi fitting; 20 – thermo relay (water overheating sensor); 21 –micro switch (water flow sensor); 22- fitting for measuring inlet gas pressure; 23 – gas unit; 24 – two-step valve; 25 – gas outlet to the main burner; 26 – valve block; 27 – electromagnetic servovalve (normally open); 28 – electromagnetic valve of the ignition burner (normally closed); 29 – valve block membrane; 30 –gas valve of the main burner; 31 –gas outlet to the ignition burner; 32 – cold water outlet to the heat exchanger.

Scheme 14. Flow chart of the appliance «BaltGaz NEVALUX-5514»

9 POSSIBLE FAILURES AND METHODS OF THEIR ELIMINATION

Table 7. Possible failures of the appliance «BaltGaz NEVALUX-5514»

Failure	**Probable reason**	**Methods of elimination**
No spark discharge between the plug and ignition burner before the beginning of water flow through the appliance	Insufficient water consumption (less than 2,5… 3 l/min) for switching the appliance on.	Open the cold water stop valve completely, increase water consumption with the hot water tap or render the knob of the tap 15 to the leftmost position (scheme 12). In case of no effect clean the water filters, heat exchanger* or address to the communal facilities service in order to remove the cause of insufficient water pressure.
	There is no power element or it is discharged. Incorrect power element installation.	Install an operative power element correctly in accordance with polarity
	Appearance of soot deposit on the plug's electrode	Effectuate cleaning of the plug's electrode from soot deposit.*
	The contacts or the connection circuit are disrupted..	Check the connections (Scheme 14) and if necessary clean up the contacts.*
	The micro switch (water flow sensor) or the electronic control block is out of order.	Replace the details that are our of order.*
	Water unit is out of order (the membrane is damaged).	Repair or replace the water unit.*
The ignition burner does not ignite at water flow through the appliance and in the presence of electric sparks	Presence of air in the gas pipelines.	See p.3.1.
	The stop valve on the gas line by the inlet into the appliance is closed or insufficiently opened.	Open the stop valve on the gas pipeline completely.
	Absence or low pressure of gas in the duct.	Address to the responsible gas facilities service.
	The LPG reserve in the cylinder has expired	Replace the LPG cylinder .
	The connection of the electronic control block to the electromagnetic valve of the ignition burner (pos.28 on Scheme 14) is disrupted.	Check the connections, if necessary, clean up the contacts or replace the cables.*
	Contamination of the nozzle or air inlet duct of the ignition burner.	Clean the ignition burner.*
	The electromagnetic valve of the ignition burner (pos. 28 on Scheme 14) is out of order.	Replace the electromagnetic valve of the ignition burner (or the valve block).*
	The gap between the ignition plug and the nozzle of the ignition burner is disrupted.	Install a gap of 4…5 mm between the plug's electrode and the ignition burner's nozzle.*
	The high-voltage cable is put onto the ignition plug not up to the stop (the spark goes to the burner's manifold).	Put the high-voltage cable onto the ignition plug up to the stop.*
main burner doesn't ignite or ignites with difficulty after the ignition burner's ignition or its flame goes out immediately right after ignition	The stop valve on the gas pipeline is not fully opened	Open the stop valve on the gas pipeline completely
	The control block is out of order.	
	The connection of the control block with the flame sensor is disrupted.	Check and restore the connection.
	The flame sensor's electrode is out of the zone of the ignition or main burners' flame or touches the details of the ignition or main burner	Adjust the flame sensor's position (its electrode must be in the zone of the ignition and main burners' flame and must not touch the details of the burners).*
	Appearance of soot deposit on the flame sensor's electrode	Effectuate the cleaning of the flame sensor's electrode from soot deposit.*
	The electromagnetic servovalve (pos.27 on Scheme 14) is out of order or the valve block membrane (pos. 29 on Scheme 14) is damaged.	Replace the electromagnetic servovalve or the valve block.*

Failure	Probable reason	Methods of elimination
The main burner's flame is stretched out, with yellow smoky tongues	Dust deposit on the nozzles and inner surfaces of the main burner.	Effectuate the cleaning of the main burner.*
After short-term operation the appliance spontaneously switches off	Insufficient draught (the appliance is switched off by the automatic control system)	Effectuate the smoke exhauster's cleaning. Make the gas flue pipe's joints air-tight.*
	The hot water temperature at the appliance's outlet is more than 90 ^{O} C (the appliance is switched off by the automatic control system).	Close the hot water tap and at the next switching on (in 1-2 minutes), reduce the hot water temperature reducing gas consumption or increasing water consumption
	The water unit membrane is damaged.	Replace the water unit membrane.*
Small water consumption at the appliance's outlet at normal water pressure in the pipeline	Scale deposit in the heat exchanger or in the hot water outlet pipe	Effectuate the cleaning of the heat exchanger or the hot water outlet pipe.*
	Water filters are contaminated	Effectuate the cleaning of the water filters.*
Insufficient water heating (the specified heating effect is not provided)	Dust deposit in the main burner's channels	Effectuate the burner's cleaning.*
	Soot deposit on the heat exchanger's fins or scale deposit in the heat exchanger's pipes.	Effectuate the heat exchanger's cleaning.*
	Low gas pressure.	Call the gas facilities service in order to eliminate the causes (or replace the LPG cylinder).
		Clean the gas filters.*
	The stop valve on the gas pipeline is not fully opened	Open the stop valve on the gas pipeline completely.
	The water unit membrane is damaged.	Replace the water unit membrane.*
At the appliance's operation increased noise of flowing water is detected	Big water consumption.	Reduce water consumption.
	High heated water temperature (at its small consumption)	Reduce gas consumption or increase water consumption.
	Gaskets displacement in the water duct joints.	Replace the gaskets.*
The main burner's flame doesn't go out when the hot water tap is closed.	Water or gas unit stem jamming.	Close the gas stop valve by the inlet into the appliance and call a specialized service organization for the appliance's repair.

* - The works are effectuated by a specialized service organization..

10. GENERAL INSTRUCTIONS

10.1. Mounting of gas appliances for domestic use must be effectuated in accordance with the project for appliance's installation and the set of rules SP 62.13330.2011.

10.2. The appliance must be installed on fire-resistant walls (brick, concrete, with ceramic plating).

10.3. The appliance's installation and technical service must be done only by a specialized service organization. The appliance must be connected only to the gas category that is indicated in the user's manual and the table on the appliance

10.4. The installed appliance must be obligatory registered in the gas facilities service.

11. HANDING THE APPLIANCE OVER TO THE CUSTOMER

11.1. After installing the appliance, the installer must check its operation in the rated conditions. If it's necessary the appropriate adjustments should be performed for achieving the values indicated in the "User's manual"

11.2. After termination of mounting and adjustment works the consumer should be instructed about the order of using the appliance:

- rules of water quantity regulation;
- rules of gas quantity regulation;
- order of switching the appliance on and off;
- Appliance treatment works, effectuated by the customer.

The mark about the instruction must be made in the Certificate of Installation and technical service. There should also be a mark about the appliance's installation.

12. TECHNICAL SERVICE

The appliance's technical service is effectuated not less than once a year by a specialized service organization.

Works connected with technical service are not the manufacturer company's warranty liabilities and are effectuated at the customer's cost.

The appliance's examination and treatment are effectuated by its owner.

During the technical service the following works are effectuated:

-cleaning of the main and ignition burners (including cleaning of the plug and the flame sensor);

-cleaning the heat exchanger from soot and cleaning (washing) the heat exchanger's pipes from scale deposit (if necessary)

-cleaning and connecting the contacts;

-replacing the sealings in the gas and water systems;

-checking the gas and water systems' air-tightness;

-checking the thermo relay's (draught sensor's) operation;;

-lubrication of moving connections (if necessary);

-unscheduled cleaning of the appliance (including cleaning from dust on the appliance's inner units and details).

<u>ATTENTION!</u> The works for the appliance's technical service, connected with disassembling of its gas or water pipelines must be effectuated only after it is completely switched off (the taps on water and gas lines by the inlet into the appliance must be closed, the power element must be removed from the battery section).

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12.1. Cleaning the main and ignition burner

In order to clean the main burner it is necessary to effectuate the following operations:

a) switch the appliance off;

b) close the gas stop valve, remove the casing (see p. 7.2.1,page 11), remove the main burner and disconnect the manifold from it;

c) remove the dust from the burner's outer surfaces and from the manifold with a brush;

d) wipe the manifold and the nozzles with a moist rag;

e) remove dust from the inner channels of the burner's blades by a brush cleaner;

f) wash the burner with a soap solution, especially its blades' inner cavities with the help of a brush cleaner. Wash it thoroughly in running water, dry it and put it back.

In order to clean the ignition burner it is necessary to effectuate the following operations:

a) switch the appliance off;;

b) close the gas stop valve, remove the casing (see p. 7.2.1,page 11), remove the ignition burner;

c) clean the electrodes of the plug and flame sensor from soot deposit and clean up their contacts;

d) screw out the nozzle from the ignition burner;

e) wash the ignition burner's inner cavity with a soap solution. Wash it thoroughly in running water, dry it and put it back.

Keeping the burner clean will keep the heat exchanger from soot contamination and prolong its working lifespan.

12.2 Heat exchanger cleaning

If the heat exchanger is contaminated, it is necessary to clean its surfaces where soot has appeared and clean the heat exchanger's pipes where scale deposit has appeared.

In order to remove soot it is necessary to:

a) Remove the heat exchanger and put it into hot soap solution or a solution of any other synthetic detergent;

b) Keep it in soap solution for 10-15 minutes and clean its surfaces by means of a soft brush, then wash it under a strong stream of water;

c) Repeat all the process if necessary.

In order to remove scale deposit it is necessary to:

a) Remove the heat exchanger and put it into a tank;

b) Prepare a 10% solution of citric acid(100 g of powder citric acid for 1 l of warm water);

c) Fill in the heat exchanger's pipeline with the prepared solution. Leave the solution there for 10-15 minutes, then drain the solution and wash the pipeline thoroughly with water;

d) Repeat all the process if necessary.

12.3. Cleaning and connection of the contacts

During the technical service clean up the contacts of the thermo relay (draught sensor), the battery section, the micro switch and electromagnetic valves if necessary. All contacts must not have oxidations and be securely connected.

12.4 Sealings replacement

During technical service when disassembling of gas or water pipelines was effectuated, it is necessary to obligatory install new sealings.

12.5 Checking the appliance's gas and water systems on air-tightness

After a regular technical service when disassembling of water and gas pipes was performed it is necessary to check the appliance on air-tightness (see pp. 7.3.7 and 7.4.6 page 12).

12.6 Checking the thermo relay's (draught sensor's) working capacity

In order to check the thermo relay (draught sensor) it is necessary to remove the flue pipe from the appliance, switch the appliance on and close the appliance's gas removal device's pipe with a metal sheet at rated operating mode (with completely opened gas valve and rated water consumption). The appliance should switch off within 10...60 seconds.

After testing, connect the flue pipe to the appliance, ensuring the joint's air-tightness.

12.7 Checking of the water temperature sensor's working capacity

In order to check the water temperature sensor it is necessary to measure hot water temperature with a thermometer and compare it with the temperature indicated on the appliance's digital display.

12.8 Unscheduled cleaning of the appliance

Cleaning of the appliance might be required more often than once a year because of the intensive appliance's operation in a premise with much dust in the air. You can notice it visually by the burner's changed flame color. If the flame becomes yellow or smoky, it means that the burner is contaminated with dust particles from the air and it is necessary to perform cleaning and technical service of the appliance. At the burner's normal operation the flame must have blue color.

It is necessary to perform an unscheduled cleaning of the appliance also in case if in the premise where appliance is installed, some constructional or repairing works were made and lots of dust and construction waste got into the appliance.

<u>ATTENTION!</u> In case of dust accumulation in the inner units and details of the appliance there is a risk of its inflammation

12. WORKS ORDER AT THE APPLIANCE'S REPAIR AND COMPONENTS REPLACEMENT

<u>ATTENTION!</u> The appliance's repair operations, connected with disassembling of its gas or water pipelines, must necessarily be effectuated only after the appliance is completely switched off (the taps on the water and gas pipelines by the inlet into the appliance must be closed). When disassembling and assembling of the water and gas pipelines is effectuated, it is recommended to install new sealings. After replacing the blocks and details it is necessary to effectuate the assembling in the reverse order.

Scheme of the appliance in disassembled condition is represented in the Annex I (page 34) on the schemes 15, 16, 17.

13.1 Casing removal

13.1.1. Remove the knob 5, pulling it towards yourself, see Scheme 17, page 38.

13.1.2. Screw out two self-threading screws, bonding the casing 1 with the carrier on the body frame, at the bottom part of the appliance.

13.1.3 Disconnect the cable 24, connecting the display PCB with the electronic control block

13.1.4 Pull the bottom part of the casing towards yourself, move it upwards and remove from the appliance.

13.2 Ignition burner replacement

13.2.1. Remove the casing, see p. 13.1.

13.2.2. Remove the cables from the plug and the flame sensor of the ignition burner 11.

13.2.3. Screw off the captive nut of the pipe of the flame igniter 13 from the ignition burner 11.

13.2.4. Screw out two fixation screws of the ignition burner connection to the main burner 9.

13.2.5. Remove the ignition burner.

13.2.6. Install a new ignition burner.

13.2.7. Check for air-tightness the joints, subject to disassembling, on the operating appliance by means of soap solution bubble test (see p. 7.4.6).

13.2.8. Check the new ignition burner's operation on the operating appliance.

13.3 Main burner replacement

13.3.3 Remove the casing, see p. 13.1.

13.3.4 Remove the cables from the plug and the flame sensor of the ignition burner 11.

13.3.5 Screw off the nut of the pipe of the flame igniter 13 from the ignition burner 11.

13.3.6 Screw of two screws and remove the ignition burner 11.

13.3.7 Unscrew the captive nut of the manifold of the burner 32 from the adaptor of the water and gas unit 3.

13.3.8 Unscrew the burner's fixation screws and remove the burner.

13.3.7 Install a new burner.
13.3.8 Check for air-tightness the joints, subject to disassembling, on the operating appliance by means of soap solution bubble test (see p. 7.4.6).
13.3.9 Check the new burner's operation on the operating appliance

13.4. Heat exchanger replacement

13.4.1. Effectuate the works listed in pp. 13.3.1-13.3.6

13.4.2. Screw out four self-threading screws fixing the carriers 33 and 34 (scheme 17) and remove them.

13.4.3. Screw out two captive nuts S24 from the heat exchanger's fittings 2 (schemes 15,16, 17).

13.4.4. Loosen two pinching nuts fixing the heat exchanger 2 to the carriers of the rear wall.

13.4.5 Remove the heat exchanger

13.4.6. Install the new heat exchanger.

13.4.7. Check the joints subject to disassembling for air-tightness on the operating appliance by means of soap solution bubble test for gas , see p. 7.4.6 and visual examination for water ,see p. 7.3.7

13.5 Battery section replacement

13.5.1 Remove the casing, see p. 13.1 (if necessary).

13.5.2 Disconnect the conductors from the battery section 21.

13.5.3 Unscrew two self-threading screws fixing the battery section 21.

13.5.4 Remove the battery section and install a new one.

13.6 Water and gas unit replacement

13.6.1 Remove the casing, see p. 13.1

13.6.2 Screw off the nut of the pipe of the flame igniter 13 from the valve block 14 of the water and gas unit.

13.6.3 Disconnect the cables from the micro switch 16 and the valve block 14.

13.6.4 Disconnect gas and water supply to the appliance.

13.6.5 Unscrew the nut connecting the burner 9 with the gas unit 15.

13.6.6 Unscrew four self-threading screws fixing the carrier of the water and gas 3 to the rear wall and remove the water and gas unit.

13.6.7 Install a new water and gas unit.

13.6.8 After installing and connecting the water and gas unit check gas and water connections for air-tightness, see p. 7.4.6 and p. 7.3.7. Gas and water leakages are unacceptable.

13.6.9 Check the appliance's operation with a new water and gas unit.

13.7 Replacement of the water and gas unit's valve block

13.7.1 Remove the casing, see p.13.1.

13.7.2 Disconnect the cables from the valve block 14 of the water and gas unit 3.

13.7.3 Screw off the nut of the pipe of the flame igniter 13 from the valve block 14.

13.7.4 Unscrew two screws fixing the valve block 14 to the body frame of the gas unit 15 and remove the block.

13.7.5 Install a new valve block and check the joints subject to disassembling on air-tightness, see p. 7.4.6.

13.7.6 Check the appliance's working capacity with the new valve block.

13.8 Replacement of the water and gas unit's water unit

13.8.1 Remove the casing, see p. 13.1.

13.8.2 Unscrew two captive nuts from the water inlet and outlet fittings of the water unit 17.

13.8.3 Unscrew two screws fixing the water unit 17 to the body frame of the gas unit15 and remove it.

13.8.4 Install a new water unit.

13.8.5 Check the joints subject to disassembling on air-tightness, see p. 7.3.7. Water leakage is unacceptable.

13.8.6 Check the appliance's operation with the new water unit.

13.9 Replacement of the water unit membrane (membrane assembled with the plate)

13.9.1 Effectuate the works listed in pp. 13.8.1-13.8.3.

13.9.2 Unscrew six screws fixing the cover of the water unit 17 with the body frame, replace the membrane that is out of order (the membrane with a plate) for a new one.

13.9.3 Assemble the water unit.

13.9.4 Effectuate the works listed in pp 13.8.4-13.8.6.

13.10 Replacement of the thermo relay (water overheating sensor)

13.10.1 Remove the casing, see p. 13.1.

13.10.2 Disconnect two cables from the thermo relay 22 on the hot water outlet pipe (Scheme 17)

13.10.3 Unscrew two screws connecting the thermo relay 22 with the loop 8 and remove the thermo relay.

13.10.4 Install a new thermo relay.

13.10.5 Check the appliance's operation with the new thermo relay.

13.11 Replacement of the pipe of cold water supply to the heat exchanger

13.11.1 Remove the casing, see p. 13.1.

13.11.2 Unscrew a captive nut from the fitting of the water unit 17.

13.11.3 Unscrew a captive nut from the fitting of the pipe of the heat exchanger 2 and remove the pipe 5 together with the gaskets.

13.11.4 Install a new pipe with new gaskets.

13.11.5 Check the appliance’s operation. Water leakage is unacceptable.

13.12 Replacement of the pipe of hot water outlet from the heat exchanger

13.12.1 Remove the casing, see p. 13.1.

13.12.2 Disconnect the hot water outlet from the heater.

13.12.3 Disconnect the cables 23 and 24 from the thermo relay 22.

13.12.4 Unscrew the captive nut of the pipe 6 from the fitting of the pipe of the heat exchanger 2 and remove the pipe 6 together with the gaskets.

13.12.5 Remove the thermo relay 22, unscrewing the screws of the loop 8.

13.12.6 Install a new pipe with new gaskets, with previously installed thermo relay 22, fixed with screws to the loop 8.

13.12.7 Check the appliance’s operation. Water leakage is unacceptable.

13.13 Replacement of thermo relay (draught sensor)

13.13.1 Remove the casing, see p. 13.1.

13.13.2 Disconnect the cables from the thermo relay 18.

13.13.3 Remove the carrier 38 with the thermo relay18 with the gas removal device, pushing up the lock on the carrier.

13.13.4 Unscrew two screws fixing the thermo relay 18 to the carrier 38 and remove the thermo relay.

13.13.5 Install a new thermo relay.

13.13.6 Check the appliance’s working capacity with the new thermo relay, see p.12.6.

13.14 Replacement of the electronic control block

13.14.1 Remove the casing, see p. 13.1

13.14.2 Disconnect all external connection cables and connectors of the electronic control block 4.

13.14.3 Unscrew two screws fixing the electronic control block 4 to the carrier on the body frame’s rear wall and remove it.

13.14.4 Install a new electronic control block.

13.14.5 Check the appliance’s operation with the new electronic control block.

13.15 Replacement of the plug or flame sensor

13.15.1 Remove the casing, see p 13.1.

13.15.2 Remove the cables from the plug and from the flame sensor of the ignition burner 11.

13.15.3 Remove the flame sensor and (or) the plug from the ignition burner 11, unscrewing their fixation screws.

13.15.4 Install a new flame sensor and/or plug

13.15.5 Check the appliance’s working capacity.

13.16 Replacement of micro switch (water flow sensor)

13.16.1 Remove the casing, see p 13.1.

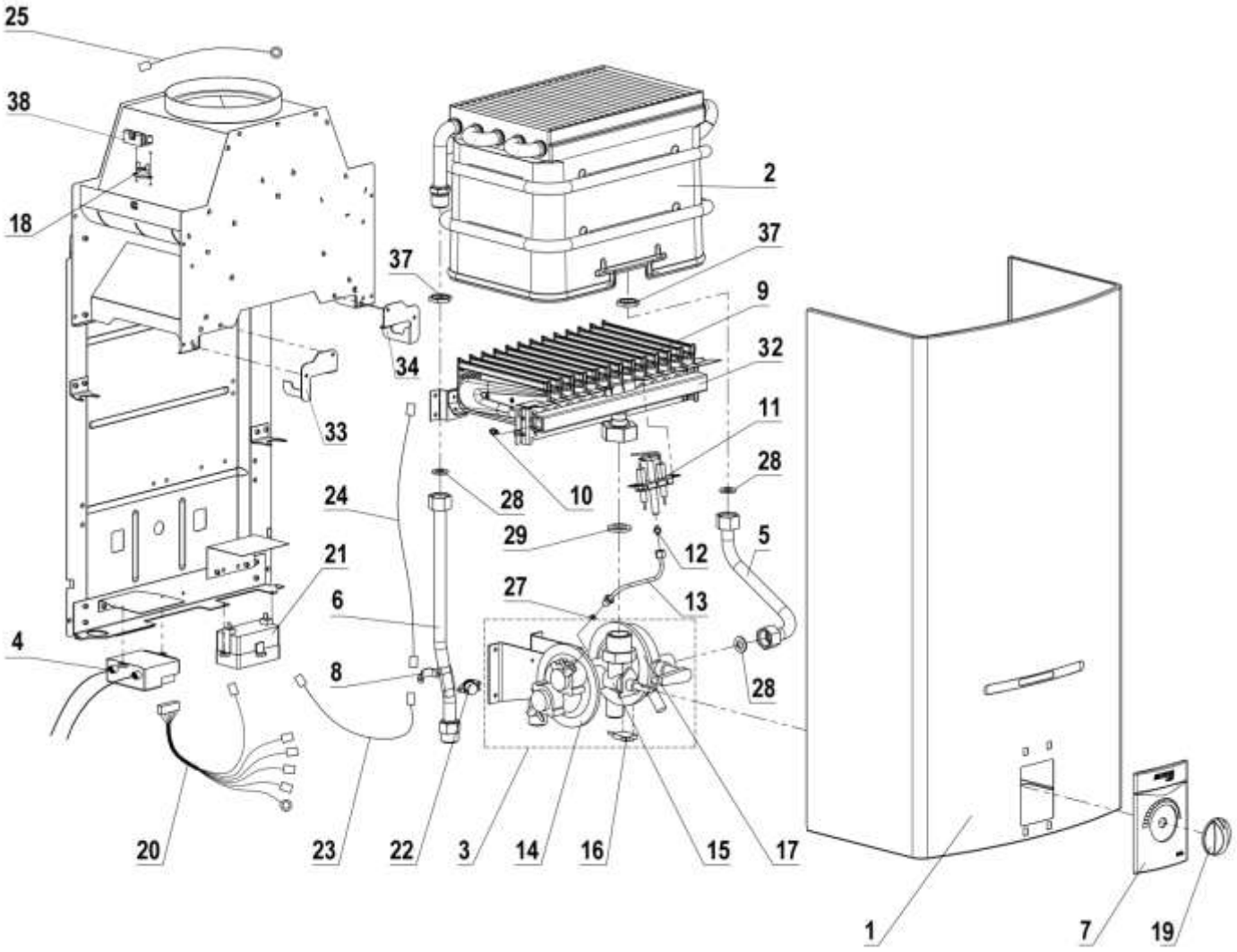
13.16.2 Remove the cables from the micro switch 16.

13.16.3 Unscrew two screws fixing the micro switch 16 to the carrier and remove it.

13.16.4 Install a new micro switch.

13.16.5 Check the appliance’s operation with the new micro switch.

Annex I Scheme of the appliance with separated components



Scheme 17. Appearance of the appliance "BaltGaz NEVALUX -5514" with separated parts

Pos.	Name	Designation	Quantity.
1	*Casing'*	**3264-03.01-02**	*1*
2	*Heat exchanger**	**3219-08.00**	*1*
3	*Water and gas unit**	**3224-04.00**	*1*
4	*Electronic control block'*	**3224-24.00 (BK-175R)**	*1*
5	*Pipe* (from the water unit to the heat exchanger, copper)*	**3224-05.000**	*1*
	Pipe (from the water unit to the heat exchanger , steel)*	**3264-04.00**	*1*
6	*Pipe* (hot water outlet, copper)*	**3264-10.100****	*1*
	Pipe (hot water outlet, steel)*	**3264-11.100*****	
7	*Gasket * 90x125*	**3264-03.03**	*1*
8	*Loop* (installed on the hot water outlet pipe* 3264-10.100)	**3222-00.025****	*1*
	Loop (installed on the hot water outlet pipe* 3264-11.100)	**3251-11.001*****	*1*
9	*Burner* (13 blades)* *Natural gas (G20. 2nd family, group H). 1.3 kPa (130 mm w.g.)(D 1.31)* *Natural gas (G20.2nd family, group H). 2.0 kPa (200 mm w.g) (D 1.18)* *Liquefied gas (G30.3rd family, group B/P). 2.9 kPa (300 mm w.g.) (D 0.79)*	**3295.07.20.005-19** **3295.07.20.005-21** **3295.07.20.005-20**	*1*
10	***Nozzle* (of the main burner)*** *Natural gas (G20, 2nd family, group H). 1.3 kPa (130 mm w.g.)(D 1.31)* *Natural gas (G20, 2nd family, group H). 2.0 kPa (200 mm w.g) (D 1.18)* *Liquefied gas (G30.3rd family, group B/P). 2.9 kPa (300 mm w.g.) (D 0.79)*	**3295.07.20.005-19** **3295.07.20.005-21** **3295.07.20.005-20**	*13*
11	*Ignition burner** *Natural gas (G20. 2nd family , group H) (D 0,55 mm)* *Liquefied gas (G30. 3rd family, group B/P) (D 0,35 mm)*	**3224-11.00** **3224-11.00-01**	*1*
12	***Nozzle* (of the ignition burner)*** *Natural gas (G20. 2nd family , group H) (D 0,55 mm)* *Liquefied gas (G30. 3rd family, group B/P) (D 0,35 mm)*	**3224-11.02** **3224-11.02-01**	
13	*Flame igniter's pipe**	**3224-07.00**	*1*
14	*Valve block**	**3224-18.00**	*1*
15	*Gas unit**	*3224-19.00*	*1*
16	*Micro switch**	*3224-21.00*	*1*
17	*Water unit**	*3224-27.00 (STG-W4P)*	*1*
18	*Thermo relay (110 °C)**	*3264-25.00*	*1*
19	Knob * D 45	*3224-00.04*	*1*
20	*Cable**	**3224-12.00**	*1*
21	*Battery section**	*3224-26.00*	*1*
22	*Thermo relay 90 ° C (installed on the hot water pipe* 3264-10.100)	**3264-26.00****	*1*
	Thermo relay 80 ° C (installed on the hot water pipe 3264-11.100)	**3264-25.00*****	*1*
23	*Cable*(connecting the thermo relay on the hot water pipe with the battery section, length 350 mm)*	**3264-27.00**	*1*
24	*Cable*(connecting the thermo relay 110 ° C with the thermo relay on the hot water pipe, length 600 mm))*	**3264-28.00**	*1*
25	*Cable*(connecting the thermo relay 110 ° C with the body frame, length 150 mm)*	*3224-14.00*	*1*
26	*Membrane with a plate (water unit repair set)**	*3224-22.00*	*1*
27	*Gasket* * D6,5x d3x 1	*3224-04.02*	*1*

28	*Gasket * D19^{x}d10^{x}2*	*3103-00.014*	*3*
29	*Gasket* * D28^{x}d17^{x}3	*3219-00.07*	*1*
30	*Gasket * D28^{x}d22^{x}2 (connection of the gas inlet pipe with the gas unit)*	*3224-04.03*	*1*
31	**Gasket*** D31^{x}d20^{x}2 (connection of the adaptor *with the gas unit*)	**3224-00.06**	*1*
32	***Manifold in the assembly**** *Natural gas (G20, 2nd family, group H). 1.3 kPa (130 mm w.g.) (D 1.31)* *Natural gas (G20, 2nd family, group H). 2.0 kPa (200 mm w.g.) (D 1.18)* *Liquefied gas (G30, 3rd family, group B/P). 2.9 kPa (300 mm w.g.) (D 0.79)*	**3264.-02.120** **3264-02.120-03** **3264-02.120-01**	*1*
33	*Carrier*	3264-00.06	*1*
34	*Carrier*	3264-00.06-01	*1*
35	*Ring* d18^{x}2,5 (connecting the valve block with the gas unit)*	**3224-18.01** or **018-022-25-2-4**	*1*
36	*Nut**	**3219-00.09**	*2*
37	*Carrier*	*3295.07.00.001*	*1*

* Supplied as spare parts.
, * Accessories marked with stars are used only together with the accessories marked with the same number of stars

Table 9. Spare parts catalogue of the appliance *«BaltGazNEVALUX-5514»*

«Armavirsky Plant of Gas Equipment"**»Ltd.**

352902, Russia, Krasnodar Krai, Armavir, Turgeneva street, 319
tel. (86137) 4-03-83